Non-Experimental Work Planning and Control: Status Report

PSC ISM Day 2010

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In 2008 Argonne committed to implement lab-wide Work Planning & Control

Lab-wide, unified and consistent ISM -based Work Planning and Control processes for experimental and non -experimental work that allows for appropriate tailoring to our diverse range of work activities.

Source: 2008 ISM Re-Verification Review Presentation

What needed to be "fixed"?

External reviewers, laboratory management, and our own insight directed us toward a WP&C process that has a uniform, but graded approach to:

- Work scope identification
- Hazard analysis and control selection
- Utilization of qualified "Subject Matter Experts" in the process
- Work approval
- Work authorization

Process…

- **Utilized the Laboratory Management System's Issue Analysis Process.**
  - Sought and obtained laboratory-wide stakeholder involvement.
  - Led to two teams: experimental and non-experimental.

- **Non-experimental team process:**
  - Stakeholder team took the position that we would allow any division that had a working process that met laboratory objectives to continue to use it; for those who didn't we would provide something that they could use.
  - Any Division or organization demonstrating an equivalent process could ask for an exemption. APS has not asked for a exemption. (nor has anyone else)

- **Published Non-Experimental WP&C and Skill-of-the-Worker procedures on March 6, 2009.**
- **Phased Implementation began on May 1, 2009.**

Progress

"Many signs of positive change and significant activities including implementation of new work control elements." DOE Headquarters HSS Special Review, June 2009

- 4 of 5 Argonne actions to address HSS recommendations on NE-WPC are completed.
  - Published three "quick reference guides" in January to improve process understanding.
- ~700 Argonne employees have completed training, either classroom or web-based.
- ~130 "work packages" have been completed
- Skill-of-the-worker procedures are being implemented in parallel.

Challenges

Then (2008):

- A "One Lab" approach was a new concept
- Extensive Hazard analysis
  - We have an inventory of over 40,000 different hazardous chemicals and materials
  - We have everything from ergonomic and noise hazards to cryogenics, high voltage electricity and high -power lasers to name a few
- Control selection
  - We need controls to address our diverse set of hazards

Now:

- 2008 challenges still exist, but are being overcome.
- Organizations with pre-existing WPC processes believe they were performing at an acceptable level, resist adding the additional pieces.
- Organizations with little formality resist because they believe it involves more work.
- The externally driven schedule drove us to a paper-based system that caused:
  - A huge and daunting "hazard analysis and controls" pile of paper.
  - Knowledge of the soon-to-be -released web application, caused some to delay.

Recent WP&C Incidents

Date	Title	WPC	Work Planning & Control		Missed hazard?	Notes
			Checklist	Blank		
Nov. 12, 2009	Energized 208 Volt Power Cord Cut	LTA	N	Y	Y	General procedure was the WPC, and so task specific WPC not used.
Dec. 4, 2009	Employee Received Electrical Shock when Energizing Vacuum Pump	N	N	N	Y	Line mgrs thought work routine, so no formal hazards analysis performed.
Dec. 7, 2009	Fiber Optic Cable Cut Resulting in Loss of Internet Service	LTA	Y	N	Y	Work deviated from the WPC document so although WPC existed, it didn't cover activity.
Dec. 10, 2009	Building 223 Ventilation Modification	N	N	N	Y	Failed to identify significant potential hazards and impact on other areas.
Dec. 14, 2009	Building 221 Asbestos Incident	LTA	N	Y	Y	Miscommunication to identify asbestos hazard.
Jan. 4, 2010	Failed Supplemental Surveillance of a dP Gauge in Building 200 MA/MB-Wing	N	N	N	Y	Personnel failed to identify the impact of action on nuclear facility.
Jan. 12, 2010	Ammonia Leak in MSD Division	LTA	Y	N	Y	Mod-JSA & ANL-644 checklist. Both failed to fully identify hazards for instrument installation.
Jan. 29, 2010	205 Skin Abrasion	Y	Y	N	N	LTA tool and technique selection.
Feb. 1, 2010	Building 223 Sprinkler Activation	LTA	Y	N	Y	Individual sprinkler head hazard not included in checklist.
Feb. 1, 2010	Heat stress/dehydration of HP Tech during CH-TRU activities	LTA	Y	N	Y	Hazards related to heat stress in suit not addressed.
Feb. 8, 2010	Sodium Loop Fire	LTA	Y	N	Y	Believe air bubble resulted in trapped sodium when system was purged with argon. Revised WPC will require purge from top rather then side.
Feb. 18, 2010	Building 205 Acrolein	LTA	Y	N	Y	Students did not believe the activity fell under work control document so did not wear PPE.

Case for "prescriptive" vs. "free-form" hazard analysis.

When prescriptive (i.e., all known, possible hazards are listed) the extent is daunting.

However our approach is based on:

- Our experience which has led us to believe the free-form approach (i.e, start with a blank sheet of paper) often leads to unrecognized hazards.
- Our web-based system will allow predefined hazards, controls and "lessons learned" to be implemented.
- This system allows suggested controls, tailored to the hazard analysis responses.
  - Controls tailored to the hazard identified; includes required ESH training.
  - Controls tailored to the "hazard level" identified.
- We will also capture, and make available "controls" libraries.

Conclusions

- NE-WPC is moving forward.

- Using the Laboratory Management System's Issue Analysis Team approach, we have, and will continue to make improvements to the procedures as needed.
  - E.g., level of documentation for approvals and authorizations

- APS Management supports the method taken:
  - Web based system coming to APS (~month)
  - APS exemption on procedures until Sept 30, 2011
  - We utilize a "suggestive" or "prescriptive" hazard analysis
  - Predefined controls are included, with a system that will learn as more people use it
  - Work flow features in the system will implement authorization and approval elements of ISM.
  - Output will provide basis for supervisor worker conversation

- Most importantly we want our workers to be safe!